



SYNERGY WOOD®

INSTALLATION GUIDE

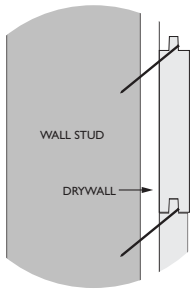
SUGGESTED TOOLS:

- ✓ Tape Measure
- ✓ Nail Gun
- ✓ Rubber Mallet / Hammer
- ✓ Nail Set Tool
- ✓ Blue Tape for Marking / Placement
- ✓ Air Compressor (for nail gun)
- ✓ Circular Saw / Hand Saw / Jig Saw
- ✓ 15 Gauge x 2" Galvanized Nails to Apply Directly to Truss or 2.1/2" Galvanized Nails to Apply Through Drywall into Truss

INSTALLATION:

1. **Important:** During the normal course of installation, you might find some areas of a board that you may not want in your ceiling (i.e., a knot that might have fallen out, splits, side bent boards, etc.). Do not set these boards aside! Simply cut out the area on the board you do not want and use the drops as starter or end pieces. The 5% waste included in your calculations takes into account these cut-outs.

2. To insure a random pattern, start by cutting a random length from a full length piece or a shorter end-matched



board and attach it cut side toward the end wall. We recommend leaving a 1/4" - 3/8" gap around the perimeter to allow for any expansion of the wood. We recommend blind nailing. This is done by nailing through the tongue

(i.e., bottom of truss, furring strips, etc) The total effective nail penetration through the wood should be at least 1-1/2" deep.

3. Next, attach full length pieces; sliding the end-matched tongues tightly into the grooves, to complete the first run. The end-matched seams do not need to line up on the truss. **USE BOARDS AS THEY COME OUT OF THE PACKS!**

4. Use the drop from the first cut to start the second run from the opposite end and complete the run with full length pieces. Save ALL cut offs that have either a male-end or a female-end; these can be used as starter pieces on each run.

5. Plan each run by estimating where you want the next end matched joint to fall.

6. Repeat and continue this process until you are finished covering your surface. Using your mallet/hammer, make sure you keep the joints tight when nailing.

7. Measure, cut and install the trim moldings** around the perimeter of the area to cover gaps at the ends or at the walls. These are the only places you will have to face nail the wood. We recommend using pin or brad nails to install trim.

8. Always measure twice, cut once!

WHAT SYNERGY ALLOWS:

Even though Synergy grades each piece of lumber based on accepted industry grading rules, there are other things we look at, such as side bend and checks.

A side bent board is a board that when laid flat, there is a slight curve in the axial direction. A diagram of this is shown in the next section under "How To Use What's Delivered". Synergy allows the following during our manufacturing process (based on length to curve):

- ▶ 4' to 7' long boards; up to 1/4" side bend
- ▶ 7.1/2' to 8' long boards; up to 3/8" side bend
- ▶ 9.1/2' to 10' long boards; up to 1/2" side bend
- ▶ 11.1/2' long boards; up to 5/8" side bend
- ▶ 12' to 14' long boards; up to 3/4" side bend

Over time, we have observed that it is very easy (defined as light pressure applied to a board when placed on edge) to "straighten" a board with side bend with the given dimensions above. Of course, if a side bend board is found while installing and it is undesirable, it can still be used. Please see the next section on how to use it

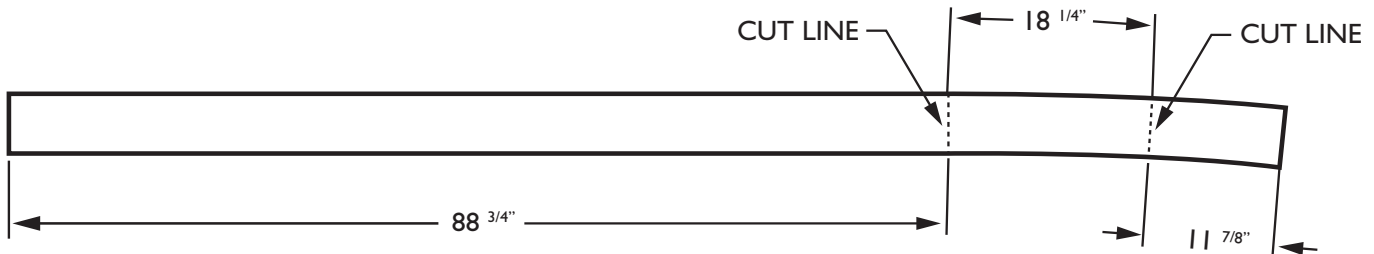
HOW TO USE WHAT'S DELIVERED:

Even with the inspection process that each Synergy board experiences, sometimes items get through or happen in transit to the job site. But even if something gets through our process or in transit, is it usable? The answer is yes!

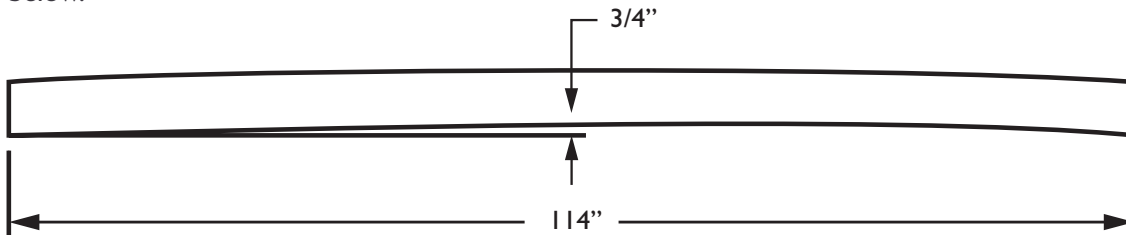
So how do you use something you would rather not have in your ceiling? First, realize that since you have end matched product, the end joint can fall anywhere on the ceiling. You will need to have shorter, cut pieces at the end of every run you are making (just like flooring).

When using Synergy tongue and groove products, Use the boards as they come out of the package! Don't set aside boards that may have natural or undesirable defects. Use these boards during the normal course of installation by cutting out the undesirable areas and using these as starting or ending pieces.

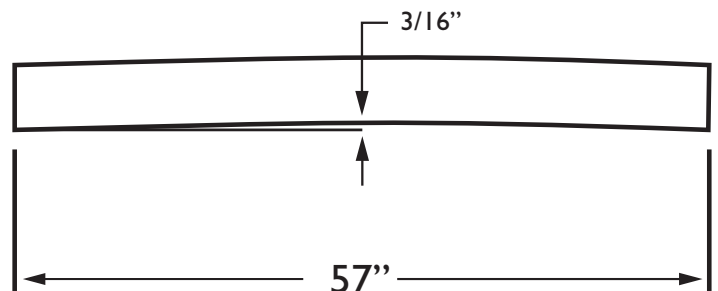
Side bend (at end of board): Same example as above, 532 lineal feet of cypress and each board is 9.1/2' (114") long. In the diagram below, let's say you find one board that the end is bowed approximately 84" from one end. If you cut part of the bow out (18.1/4"), that represents 16% of the board but only .3% of the job total.



Side bend (in middle of board): Let's say that you have a 9.1/2' board that has more than 1/2" side bend to it, say 3/4", as shown in the diagram below.



Just by cutting the board in half, the side bend will go well below 1/2 the original side bend, as shown in the following diagram. Now both of the remaining pieces can be used as starter or ending pieces in your ceiling. Your total waste is 0%!



Two common items that we hear about are knot holes and side bent boards. Let's take a look at each:

Knot Hole: As an example, let's say you have a job that you ordered 532 lineal feet of cypress and each board is 9.1/2' (114") long. You start your installation and on one of the boards, a 2" diameter knot fell out. If you cut the 2" diameter hole out and use both ends, this represents 1.7% of the board. But it also represents .03% of the job total! Further, even if you had 10 boards with 2" holes in each (highly unlikely), it is still .3% of the job total. You are still below our recommended 5% waste for the job. But if you saved these 10 boards for the end of the job, that represents a little over 17%!

Side Bend:

WOOD MOVEMENT

Wood possesses many excellent qualities, but it also has certain peculiarities which must be understood and considered for optimum application. One of these qualities is its hygroscopicity which causes change in some properties due to the moisture absorption and desorption.

Because of this, installed wood moves constantly (expanding and contracting) due to the moisture content of the wood changing in relation to the environmental conditions as it correlates to the relative humidity of the surrounding area.

Although wood is constantly expanding and contracting due to temperature and relative humidity, wood does not move equally in all directions. The grain structure causes it to move differently in three different directions.

Wood is very stable along its longitudinal direction (length of board), parallel to the grain. Green lumber shrinks approximately .01% of its length as it dries.

Wood moves much more across the grain, tangent (width as it is plain-sawn) to the growth rings. Green lumber shrinks as much as 8% in this direction.

Wood moves only half as much (4%) in the radial direction (thickness as it is plain-sawn).

All wood brought into Synergy is kiln dried. Each species is slightly different and therefore will have a different moisture content. What is important is that we will not finish any wood that is above 18% moisture content.

Our tongue and groove products can grow (increase in moisture) as much as 1/8" in width or can shrink (decrease in moisture content) same amount. This is normal and is dependent upon the job site conditions.

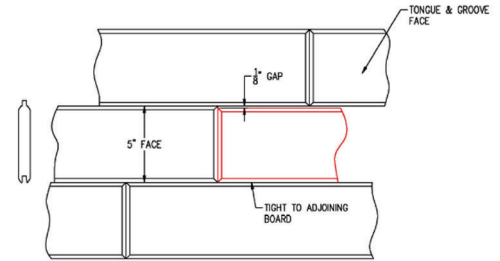
When the boards leave our molder, they are all the same size, which is a 5" face. The tolerance we allow at our molder is

$\pm 0.10"$ ($< 1/64"$) which is checked throughout the remaining processes in our plant. This will change somewhat even while it is in our plant due to our relative humidity.

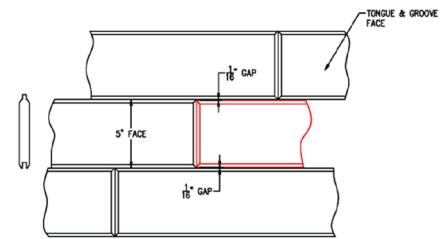
How to Use a Variation in Width Board Due to Increase or Decrease in Moisture Content:

Depending upon what is encountered at the job site, an increase or

decrease in width can be managed to minimize the look of the offset. If one board is 1/8" narrower than the next board, and you install the narrow board tight against the other adjoining board, you will create a 1/8" gap.



However, if you "split the difference", you will minimize this gap, which in most cases will not be visible in a ceiling application.



Again, when using Synergy tongue and groove products, **USE THE BOARDS AS THEY COME OUT OF THE PACKAGE!** Don't set aside boards that may have natural or undesirable defects. Use these boards during the normal course of installation by adjusting or cutting out the undesirable areas and using these as starting or ending pieces.

Because no one can control the environment, wood movement, which includes an increase or decrease in width, is not considered a defect.

*** Trim moldings are available in various sizes; 1 1/2" Ceiling Trim, 1 3/4" Crown, 3 1/4" Crown and 5 3/8" Crown.*

ADDITIONAL INFORMATION:

- Do not expose the product to direct sunlight, rain or moisture.
- This product is designed for interior ceilings and walls and exterior porch ceilings.
- Because wood is nature's product, when stained, variations in color and grain pattern are to be expected. This is the natural beauty of wood. Color variation and grain pattern (including heartwood) are not considered a defect. Use boards as they come out of the packs. Do not attempt to color match boards in the room.
- For more information, call us toll free 866-791-6714 or visit us online at SynergyWood.com.